Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004
T +1 202 637 5600
F +1 202 637 5910
www.hoganlovells.com

October 17, 2019

VIA ECFS

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Association of American Railroads Notice of *Ex Parte* Presentation
WT Docket No. 17-200

Dear Ms. Dortch:

On October 15, 2019, representatives of the Association of American Railroads ("AAR") spoke via telephone with Aaron Goldberger, Wireless and International Advisor to FCC Chairman Ajit Pai, to discuss the Notice of Proposed Rulemaking ("NPRM") issued in the above-referenced docket (the "900 MHz Proceeding"). Participants on behalf of AAR were Kevin Stokes and Bart Downing (CSX), Jim Barrett (BNSF), Tim Strafford (AAR), Tom Peters and Michele Farquhar (Hogan Lovells), and the undersigned. During the call, the participants discussed the attached slide presentation.

This notice is filed pursuant to FCC Rule 1.1206. Please contact the undersigned with any questions regarding this matter.

Respectfully submitted,

David L. Martin

Counsel to AAR
david.martin@hoganlovells.com
D + 202 637 5858

cc: Aaron Goldberger

AAR Wireless Communications Committee

Briefing to the Office of Chairman Pai

Regarding the 900 MHz NPRM

WT Docket No. 17-200

October 15, 2019

ASSOCIATION OF AMERICAN RAILROADS

Background: AAR's Current License

- AAR currently holds six channel pairs in 900 MHz throughout the country. Because they are not contiguous, they only support narrowband operations.
  - In 2001, the FCC combined AAR's hundreds of site-based licenses into a single nationwide geographic "ribbon" license, WPSF894, extending 70 miles perpendicular to all railroad track.
- These channels are used for Train Control/Central Traffic Control, a mission-critical, safety-of-life application that allows for the wireless control of wayside track switches and signals by train traffic control centers.
- The spectrum is actively used at some 9,500 wayside locations all across the United States.

The NPRM Does Not Address How AAR's License Would Be Relocated

- The NPRM mentions the AAR license at ¶ 16 / FN44, but it is ignored throughout the remainder of the document.
- There are three types of licenses currently in the band:
  - SMR Geographic (MTA) Licenses
  - Site-Based Licenses
  - AAR's Ribbon License
- Only the first two are included in the discussion of the relocation mechanisms.

AAR's Geographic Licensing Must Be Retained

- The NPRM states that after reconfiguration, the narrowband segment of the 900 MHz band - where all of AAR's channels will reside - will be "available for site-based operations"
  - The NPRM does not appear to contemplate relocation of AAR's 900 MHz channels into the narrowband segment as a single license.
- This result would be inconsistent with the finding in the FCC's 2001 ribbon license order that a geographic license for AAR serves the public interest by enhancing administrative efficiency and facilitating improvements to the safety of train operations. The NPRM does not present any rationale for reversing the FCC's prior finding.

AAR Needs to Operate on the Same Channels Nationwide

- The proposal to issue broadband licenses on a county-by-county basis using a combination of alternative methods could result in AAR's ribbon license being relocated by different entities to different frequencies in different counties, possibly with different schedules and reimbursement mechanisms. This would create an operational nightmare.
- Trackside signaling and switching equipment needs connections to redundant base stations due to frequent outages of telco-provided backhaul.
  - Trackside equipment near county lines would loose redundancy if the nearest or next-nearest base station is in another county operating on a different frequency.
  - Solving this issue would require the construction of many new base stations, which would greatly increase relocation costs.
- To the extent AAR retains a six channel (*i.e.*, narrowband) network after the relocation, it is important that those six channels not be contiguous, because that would lead to railroad-to-railroad adjacent channel interference in congested areas where railroad infrastructure is in close physical proximity. Adequate spectral spacing – like AAR has now – is needed between the railroad channels to avoid this self-interference.

Relocation Costs Are High

- The NPRM incorrectly assumes that retuning is possible and can be accomplished at low cost.
- AAR assessed the amount of effort required to relocate its channels and determined that approximately one-third of radios were not capable of being programmed to frequencies other than the current six channel pairs. Thus, any relocation to new channels would require a wholesale replacement of these radios.
- Even for radios that can be retuned, railroad practice is to physically swap out the radio to minimize rail traffic disruption and to permit retuning to be performed in a controlled environment to ensure proper calibration.
- AAR estimated the cost to replace radios and to retune the remaining radios would be approximately $70M for all six channels.
  - Relocating only three channels would reduce the cost by approximately half.

AAR and Anterix Negotiated a Solution for Relocating AAR and Maintaining its Geographic License

- AAR was approached by PDV in 2017 to negotiate a voluntary relocation agreement.
- PDV proposed to provide AAR with 10 contiguous channels (first in the E Block, later changed to the A Block) in exchange for AAR's six channels and in lieu of relocation costs.
  - AAR and PDV signed a Letter of Intent to undertake such a swap.
  - Under this plan, the railroads would be fully responsible for the estimated $70M in relocation costs for its six channels.
  - The railroads view the cost as an investment to provide new wider-band capabilities and improve several railroad safety applications (as discussed in AAR's comments and on the following slides), rather than simply maintaining the *status quo* of limited narrowband operations.
  - Without the 10 for 6 swap, there is no incentive for the railroads to cover the relocation costs. Six channels is not sufficient to create the wideband network needed for the proposed applications.

The NPRM's Proposals Would Prevent the Proposed AAR/Anterix Solution

- The NPRM's proposed rules would stymie AAR and Anterix's voluntarily negotiated arrangement:
  - Assigning the A Block to AAR before adoption of the R&O would make Anterix ineligible for broadband licenses nationwide because Anterix could not meet the proposed 20 MTA Block requirement.
  - Assigning the A Block to AAR after the R&O is adopted would violate the FCC's proposed 1:1 channel limitation.

The AAR/Anterix Solution Provides the Wideband Channels Needed to Support Rail Safety Applications

- Today, AAR's narrowband license is used by railroads to carry basic messages to operate wayside switches and signaling equipment.
- With a paired 125 kHz channel in the A Block, wideband communications would allow advanced support for additional critical wayside infrastructure, including:
  - **Highway Grade Crossing Continuous Integrity Testing:** Malfunctioning highway grade crossing equipment could be addressed more quickly by remotely performing diagnostics and resets rather than waiting for a crew to reach the site.
  - **Advanced Defect Detection:** Technologies such as thermal imaging can allow railroads to detect train wheel defects earlier and prevent derailments. Other wayside detectors look for objects dragging the tracks and for anomalies in rail car height/width that could pose problems to tunnels and bridges. Adding defect sensors on individual rail cars would prevent damage and derailments. Operating and properly maintaining these sophisticated monitoring devices require increased wider-band connectivity compared to what is in place today.

The AAR/Anterix Solution Provides the Wideband Channels Needed to Support Rail Safety Applications (cont'd)

- Support for safety infrastructure (cont'd):
  - **Increased Support for Rail Monitoring –** Railroads utilize a variety of monitoring applications, including public highway rail crossing integrity tests, at least once a month (per FRA regulations). New applications could allow railroads to monitor integrity on an ongoing basis.
  - **Increased Oversight of Maintenance Activities –** Railroads use evolving systems to increase coordination and communications between the track maintenance and train operations personnel to avoid accidental collisions. However, in many rural areas, commercial cellular systems do not have adequate coverage to support these systems.
  - **Positive Train Control –** PTC networks consist of tens of thousands of wayside interface units ("WIUs") that provide for the interchange of data between the critical wayside infrastructure components and the PTC clients/server. Connection of these devices to a wideband network at 900 MHz (separate from the narrowband 220 MHz PTC network) would allow for remote diagnostics and corrections to improve the reliable functioning of these critical devices.

Changes Are Necessary to Make Creation of a Broadband License Realistic

- Due to relocation costs and the infeasibility of protecting such an expansive network, the Commission's proposal should be modified:
  - The rules should allow AAR to obtain its replacement spectrum on a geographic basis, consistent with its current ribbon license. (AAR could be required to return any geography it obtains beyond its current ribbon license boundaries.)
  - The rules should exempt AAR from the proposed 1:1 replacement channel limit in light of the compelling need for wideband capability as supported by the use case examples explained above. This would serve the public interest by increasing rail safety.
  - The FCC should reduce the MTA Block eligibility criterion from 20 to 19 for a potential broadband licensee that agrees to relocate AAR as a single geographic license.

CONCLUSION

- AAR's nationwide geographic ribbon license – with consistent channels nationwide – must be maintained in any relocation. Any other outcome would constitute a materially negative modification of AAR's existing license.
- Due to AAR's expansive geographic operations across the country, AAR recognizes that creating a new 3x3 MHz broadband segment may not be practical unless AAR is relocated. However, as a complex nationwide system, AAR should not be subject to mandatory relocation. Should AAR agree to a voluntary relocation, its costs must be fully covered.
- In order to maintain consistent channels, AAR will need to be relocated even in counties where there is no broadband licensee, so there must be a mechanism for covering that cost nationwide.
- The simplest outcome would be to permit AAR to relocate to the 10-channel A Block at its own expense, which would yield a win-win solution by enabling a new broadband segment while simultaneously advancing public safety.